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# PROPORTIONAL GUIDELINES IN ANCIENT NEAR EASTERN ART*

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STUDIES on the history of proportions in art have generally avoided treatment of the canon of proportions in the art of the ancient Near East. This omission, which resulted from insufficient knowledge of the subject, is no longer justified. Recent studies on metrology in Near Eastern architecture and the identification of brick dimensions with Babylonian units of measure have now expanded knowledge about prevailing standards of proportions in Mesopotamian architecture through the Neo-Babylonian period.[1] This paper seeks to explore the ramifications of these studies for the identification of the canon of proportions in Near Eastern art, with special reference to the monumental art of Achaemenid Susa, especially that which can be dated to the reign of Darius I (521–486 B.C.).

## I

Achaemenid monumental sculpture in the round is best exemplified by the colossal statue of Darius I, uncovered in 1972 at Susa, by the French Archaeological Delegation in Iran (fig. 1).[2] Carved from Egyptian grey granite, the statue is presumed to have been one of a pair of identical portal figures which were erected against the west façade of the main gate that gave access to the royal complex at Susa.[3] Fragments of

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* This article was presented in abbreviated form at the XXXI Rencontre Assyriologique Internationale in Leningrad in July 1984 and has benefited from insights and information gained from informal discussions with Marvin Powell, as well as Anne D. Kilmer, Wolfgang Heimpel, and David Stronach, my colleagues at the University of California, Berkeley. Included as appendixes are brief studies on other aspects of bricks in Mesopotamia by W. G. Lambert, "The Sumero-Babylonian Brick-god Kulla"; A. D. Kilmer, "The Brick of Birth"; and W. J. Heimpel, "Gudea's Fated Brick" (see pp. 203 ff., below). I am also indebted to Jane Becker for the preparation of the drawings used here in figs. 3, 5, and 12–14.

[1] M. A. Powell, "Metrological Notes on the Esagila Tablet and Related Matters," *ZA* 72 (1982): 106–32. For a complete bibliography on earlier research on Near Eastern metrology, see idem, "Sumerian Numeration and Metrology" (Ph.D. diss., University of Minnesota, 1971); J. Friberg, *A Survey of Publications on Sumero-Akkadian Mathematics, Metrology and Related Matters (1854–1982),* Research Report, Department of Mathematics, the University of Göteborg, Chalmers University of Technology (Göteborg, 1982).

[2] D. Stronach, "Description and Comment," *JA* 260 (1972): 241–51; idem, "La Statue de Darius le Grand découverte à Suse," *Cahiers de la DAFI* 4 (1974): 61–72; H. Luschey, "Archäologische Bemerkungen zu der Darius-Statue von Susa," *Akten des VII internationalen Kongresses für iranische Kunst und Archäologie, München, September 1976* (Berlin, 1979), pp. 207–17.

[3] J. Yoyotte, "Les Inscriptions hiéroglyphiques: Darius et l'Egypte," *JA* 260 (1972): 263; J. Perrot and D. Ladiray, "La Porte de Darius à Suse," *Cahiers de la DAFI* 4 (1974): 43–56; F. Vallat, "Les Textes cunéiformes de la statue de Darius," ibid., pp. 164 f.; Luschey, "Archäologische Bemerkungen zu der Darius-Statue von Susa," *Akten,* p. 216; M. C. Root, *The King and Kingship in Achaemenid Art,* Acta Iranica, vol. 9 (Leiden, 1979), pp. 68–71. While Perrot, Ladiray, and Yoyotte believed the Darius statue to be a replica of the original intended for the Atum Temple at Heliopolis, Vallat considers it to be the original, which was presumably brought to Susa by Xerxes after his punitive campaign in Egypt following Darius's death. The Susa statue and fragments of possibly four other similar

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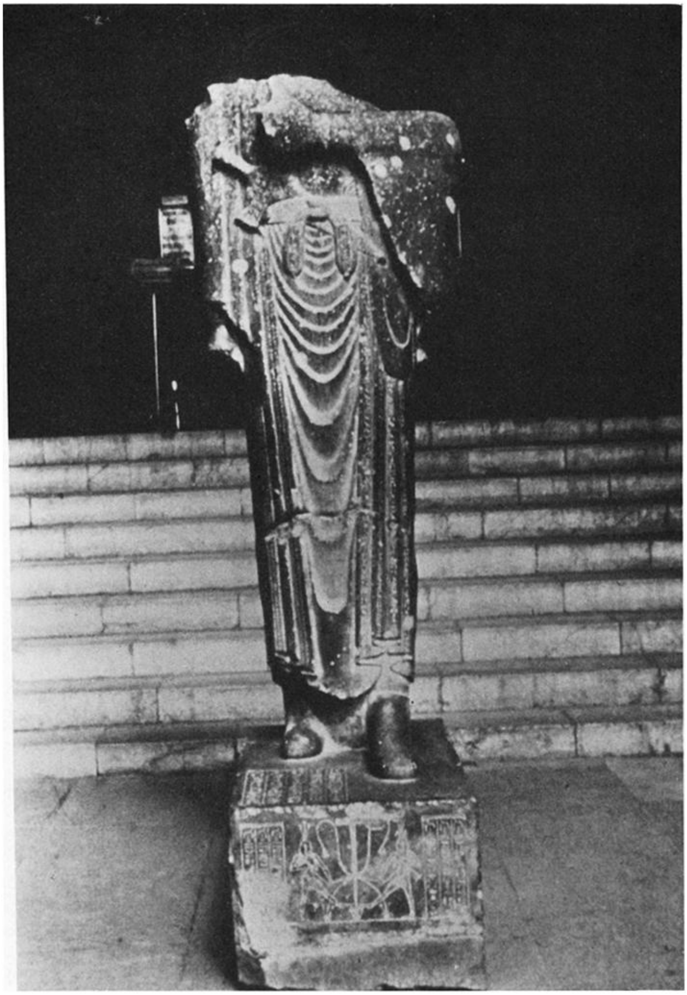

FIG. 1.—Stone statue of Darius I, from Susa, dated to around 490 B.C., Archaeological Museum, Tehran. Photo courtesy Elizabeth Carter.

perhaps three other statues of Darius, with somewhat larger dimensions and different attributes, are also known from Susa.[4] The quadrilingual inscription on the statue indicates that the monument, which was carved in Egypt perhaps for the Atum Temple, at Heliopolis, was commissioned by Darius I and erected in accordance with

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statues from Susa, now in the Louvre, are all attributed to a single Egyptian workshop by H. Luschey; see "Die Darius-Statuen aus Susa und ihr Rekonstruktion," in H. Koch and D. N. Mackenzie, eds., *Kunst, Kultur und Geschichte der Achämenidenzeit und ihr Fortleben,* AMI, Ergänzungsband 10 (Berlin, 1983), pp. 191-206, fig. 7.

[4] Luschey rejects Perrot and Ladiray's reconstruction of the winged bull portal figures proposed for the east façade of the Gate at Susa; see *Cahiers de la DAFI* 4 (1974): 49-50. Instead, he tentatively reconstructs the east façade of the Gate at Susa with a pair of Darius statues used as portal figures; see "Die Darius-Statuen," p. 204, postscript.

his own specifications.[5] Darius's inscription states that the statue was created so that "he who saw it in the future would know that the Persian man had conquered Egypt."[6] Indeed, despite its Egyptian pose and format, the statue illustrates Darius's view of himself as a world ruler and Persian master of Egypt, directly, through its iconography and dress, and, indirectly, through its proportions.[7]

A comparison of the Darius statue with other examples of Achaemenid sculpture reveals a striking resemblance between the anatomical proportions of the Darius statue and those of the seated king in the central panels of the North and East stairways of the Apadana at Persepolis (fig. 2).[8] If the seated image of the king in the panels from the Apadana were shown in a standing position, its height would approximate that of the Susa statue, which originally measured some 2.70 m without its base and about 3.20 m with it.[9] Apart from their nearly human scale, these colossal images resemble each other in their anatomical proportions.[10] The relationship of the various parts of the body, such as palm to forearm and forearm to overall height and breadth, are standardized here and expressed according to a common system of proportions. This artistic canon is also found in the standing figure of the king, depicted on the face of the tomb of Darius at Naqsh-i Rustam, which has served as a model for my reconstruction of the missing head and shoulders of the Darius statue (fig. 3).[11] The 9:1 ratio of the height of the head (hairline to jawline) to the body height found here seems to have prevailed in the other two images as well.[12] Similar formal traits evidently characterize Achaemenid sculpture from the early years of Darius's reign, as shown by the proportions of the king's figure in the Behistun relief, which one may safely assume to have been completed in 520–519 B.C.[13] Despite its relatively shorter stature, the royal figure in the Behistun relief (1.72 m in height) displays the ratio of palm to forearm found in the Darius statue, dated to around 490 B.C.[14]

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[5] Yoyotte, *JA* 260 (1972): 253-66; idem, *Cahiers de la DAFI* 4 (1974): 181; Vallat, *JA* 260 (1972): 247-51; idem, *Cahiers de la DAFI* 4 (1974): 161-70.

[6] Idem, *Cahiers de la DAFI* 4 (1974): 161 f.

[7] For discussion of the dress and iconography of the Darius statue, see Stronach, *JA* 260 (1972): 241-51; idem, *Cahiers de la DAFI* 4 (1974): 61-72; M. Roaf, "The Subject Peoples on the Base of the Statue of Darius," *Cahiers de la DAFI* 4 (1974): 73-159.

[8] E. Schmidt, *Persepolis*, vol. 1, OIP 68 (Chicago, 1953), pls. 121-22; A. B. Tilia, *Studies and Restorations at Persepolis and Other Sites of Fārs*, vol. 1, IsMEO Reports and Memoirs 16 (Rome, 1972), pp. 75-98; Root, *King and Kingship*, pp. 88 f.

[9] Luschey, "Archäologische Bemerkungen zu der Darius-Statue von Susa," *Akten*, p. 208, fig. 5; idem, "Die Darius-Statuen aus Susa," in Koch and MacKenzie, eds., *Kunst, Kultur und Geschichte*, p. 198.

[10] E. Porada has commented on the forceful impression made on the viewer by these images which, because of the nearly human scale, are more impressive than gigantic figures, which would appear remote by virtue of their unreal scale; see "Some Thoughts on the Audience Reliefs of Persepolis," *Studies in Classical Art and Archaeology: A Tribute to Peter von Blanckenhagen* (Locust Valley, New York, 1979), p. 39.

[11] E. Schmidt, *Persepolis*, vol. 3, *The Royal Tombs and Other Monuments*, OIP 70 (Chicago, 1970), pp. 116-18, pl. 19; Root, *King and Kingship*, pp. 72 f.

[12] The similarities between these figures extends, of course, to features of dress, iconography, and content, which are not treated in this paper.

[13] Root, *King and Kingship*, pp. 45; 58, n. 38; 60; 185. Because of its elevated location, the proportions of the figures in photographs of the relief are generally distorted; see Luschey, "Studien zu dem Darius-Relief von Bisutun," *AMI* 1 (1968): 67 f.; idem, "Die Darius-Statuen aus Susa," in Koch and MacKenzie, eds., *Kunst, Kultur und Geschichte*, p. 209. A comparative study of the proportions of the human figure in Achaemenid art is to appear in a doctoral dissertation by J. Davis-Kimball currently in progress at the University of California, Berkeley.

[14] For the date of the Darius statue, see Stronach, *JA* 260 (1972): 243 f.; Vallat, *Cahiers de la DAFI* 4 (1974): 59-60.

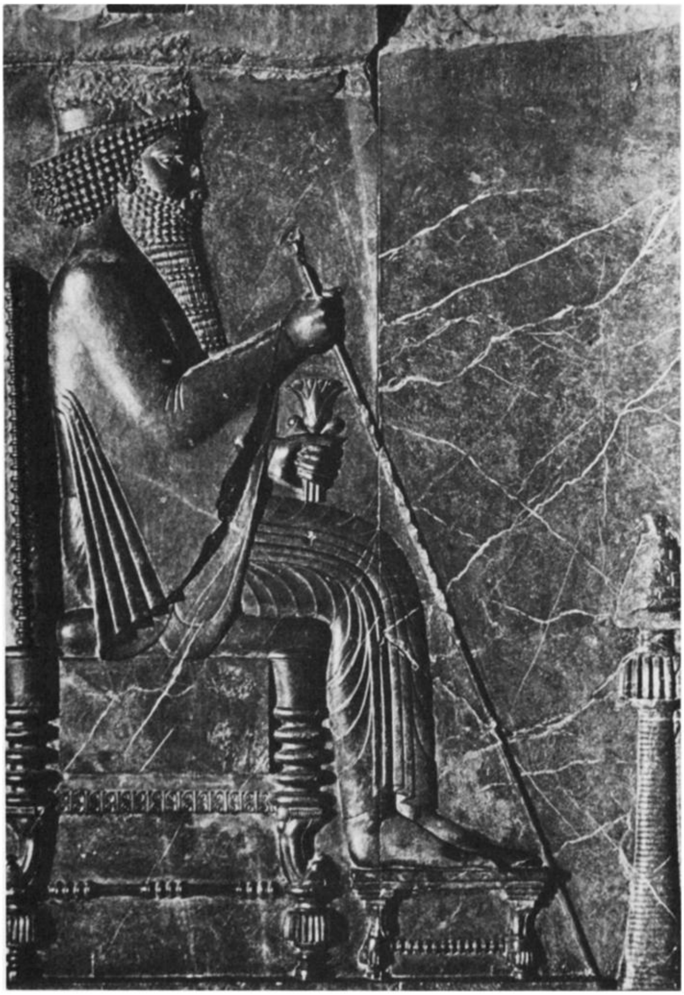

FIG. 2.—Stone relief showing seated king. Detail from the central panel of the N stairway of the Apadana, at Persepolis, Archaeological Museum, Tehran. Photo from M. Mazahéri, *Les Trésors de l'Iran* (Geneva, 1977), p. 78.

That the Achaemenid canon of proportions was subject to change under certain conditions is indicated by the differing heights of figures of servants from the stairway of the palace of Xerxes at Persepolis and by the variable proportions of nobles of equal rank from the northeast stairway of the Central Building at Persepolis (fig. 4).[15] The blatant disregard for the use of a consistent system of proportions displayed in

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[15] For the reliefs from the palace of Xerxes at Persepolis, see Schmidt, *Persepolis,* vol. 1, pls. 163–65; for those from the Central Building at Persepolis, ibid., pls. 72–73; see also reliefs from the Eastern stairway of the Apadana at Persepolis, ibid., pl. 49.

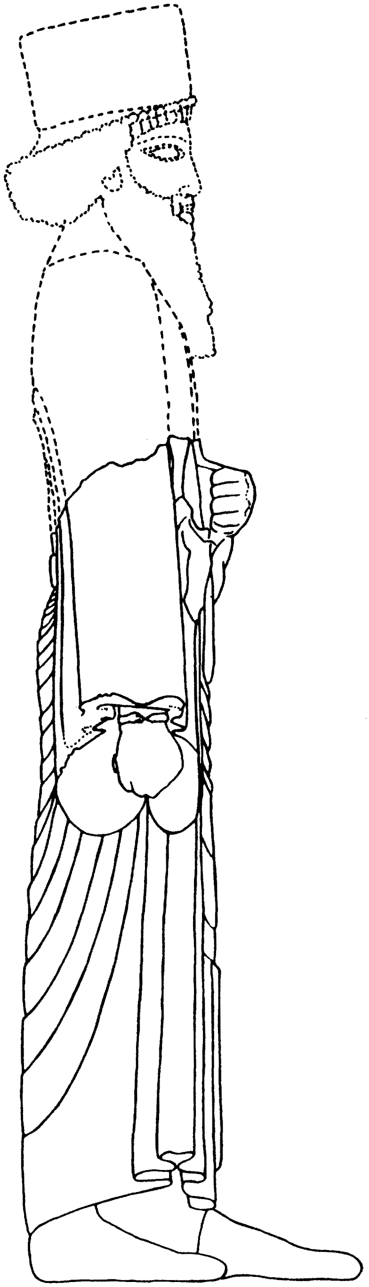

FIG. 3.—Drawing of the statue of Darius I from Susa with head and shoulders restored. Drawn by Jane Becker, Lowie Museum of Anthropology.

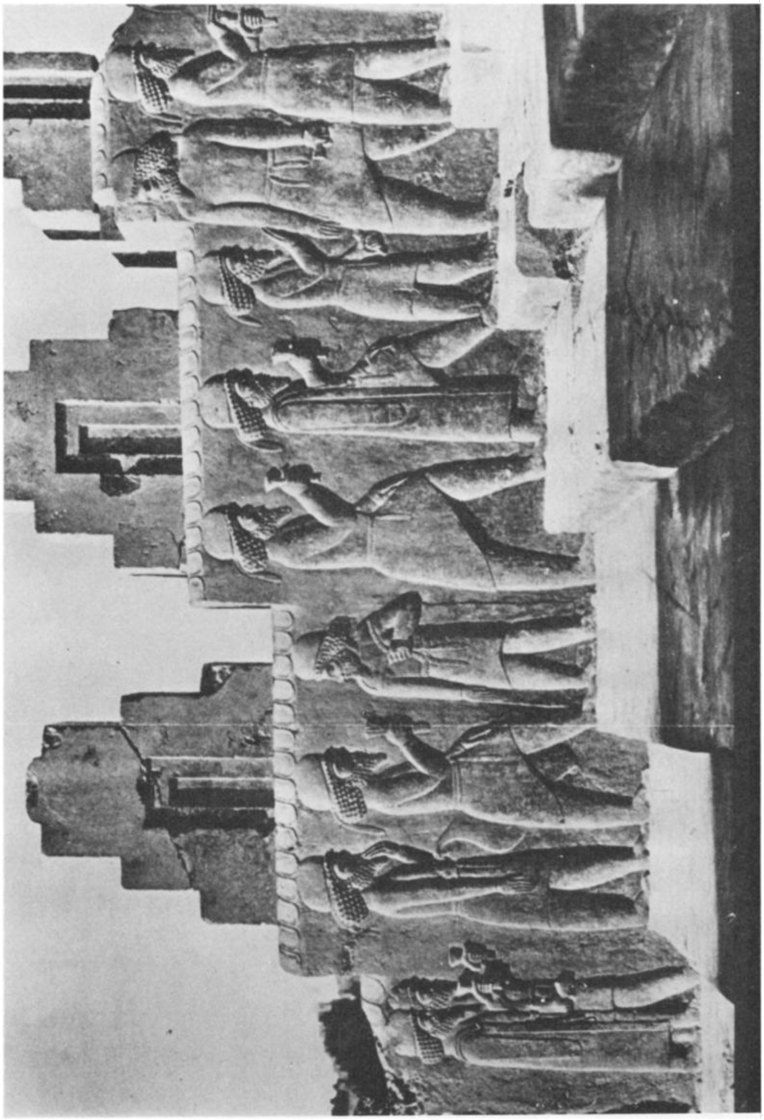

FIG. 4.—Stone relief showing file of nobles from the northeast stairway of the Central Building, at Persepolis. Photo from R. Ghirshman, *The Art of Ancient Iran* (New York, 1964), fig. 209.

these reliefs is explained by spatial limitations imposed by the architectural setting of the reliefs. The disproportion between gigantic and diminutive figures, necessitated by the variable height of the wall, clearly demonstrates the subordination of Achaemenid sculpture to its architectural setting.

Abrupt changes in the format and scale of figures within a single procession is also found in the medium of glazed-brick wall decoration of Achaemenid structures from Susa. Thus the scale and direction of figures in the Susian Archer frieze are determined by projections and angles along wall surfaces; figures in a single procession may suddenly shift direction to face a doorway, or the scale of one or more figures within a frieze may be reduced to accommodate a wall recess.[16] The Achaemenid brick mason, moreover, readily trimmed and cut the decorated bricks for use as building blocks. Such tailoring of glazed bricks to architectural requirements, which provoked M. Dieulafoy's comment that "les Perses ne connaissaient pas l'onglet. Ils coupaient brutalement les bordures sans les préoccuper de raccorder les dessins," in fact distinguishes Achaemenid brick panels from the carefully fitted glazed bricks of Neo-Babylonian date.[17]

## II

The dependence of form on function, of art on its architectural context, is expressed with greater subtlety in Achaemenid sculpture in the round, best exemplified by the statue of Darius from Susa (figs. 1 and 3). The survivor of the pair that flanked the main Gate at Susa, this statue was originally anchored against the Gate wall, facing the paved inner court. The monolithic statue, which is estimated to have measured a little over 3 m in height prior to the fracture and loss of its head and shoulders, rests on a rectangular base measuring 51 cm in height.[18] The height of the base corresponds exactly to the absolute dimensions of the cubit-size standard brick used to pave the floor of the passage along the west façade of the same Gate.[19]

The overall height of the three-meter statue, is expressed here in six multiples of the height of the base and the length of the Persepolitan cubit, and it is repeated in the dimensions of bricks which were laid in six rows of nine at the foot of the statue. The cubit-size standard bricks used on the floor of this passage evidently date from a period when the floor was repaved after the erection of the statue.[20] But the correspondence between the cubit-size module used for the proportions of the statue and the dimensions of the Achaemenid standard pavement brick would seem to indicate, nevertheless, the adoption of an abstract architectural unit for the definition of proportions in the statue of Darius. Although made in an Egyptian workshop, the Susa statue of Darius was evidently proportioned according to specifications dictated by its Persian patron. Although the Egyptian reformed cubit had dimensions that were comparable to the Neo-Babylonian and Persian cubits, the Egyptian canon of proportions in art relied on metrological guidelines which were expressed through the use of square grids.[21] In Egyptian art of the Twenty-Sixth Dynasty, or Saite period (662–525 B.C.), the human figure is divided into twenty-one squares, with a 4:1 ratio of forearm, or cubit, to body height.[22] If we plot the Darius statue in the Egyptian grid of the Saite period, where the human foot is registered as four squares, we find notable differences between its proportions and those of the Egyptian image of comparable dimensions (fig. 5).[23] The relatively longer legs and torso, which distinguish the Darius statue, clearly record what must have been the prevailing Persian rather than Egyptian canon. The esoteric values which inspired the rigid and cultic art of Egypt are replaced in the Darius statue by the worldly concerns of the Persian patron, expressed explicitly in the iconography and implicitly in the proportions of the statue. These proportions thus reflect the use of an architectural module based on standard brick dimensions rather than on a unit of measure with immediate anatomical significance.

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[16] M. Dieulafoy, *L'Acropole de Suse d'après les fouilles exécutées en 1884, 1885, 1886 sous les auspices du Musée du Louvre*, vol. 3 (Paris, 1893), pp. 253 f.; R. de Mecquenem, L. Breton, and M. Rutten, *Mission de Susiane, Mémoires de la mission archéologique en Iran* 30 (Paris, 1947), p. 52 (hereafter *MAI*); E. Haerinck, "Le Palais achéménide de Babylone," *Iranica Antiqua* 10 (1973): 126.

[17] Dieulafoy, *L'Acropole de Suse*, p. 283; R. Koldewey, *Das Ischtar-Tor in Babylon*, WVDOG 32 (1918; Osnabrück, 1970), pl. 10; Haerinck, "Le Palais achéménide de Babylone," *Iranica Antiqua* 10 (1973): 126.

[18] Stronach, *Cahiers de la DAFI* 4 (1974): 61; Roaf gives the measurements of the base of the statue as 1.043 × 0.64 × 0.51 m; ibid., p. 73.

[19] Perrot and Ladiray, *Cahiers de la DAFI* 4 (1974): 48 f.

[20] The Achaemenid standard bricks of cubit and four-palm formats from Susa are similar to Babylonian standard bricks of twenty-four fingers and sixteen fingers, which measure about 49 × 49 cm and 33 × 33 cm, respectively; see Powell, *ZA* 72 (1982): 110 f. Like Babylonian standard bricks, Achaemenid standard bricks evidently served as units of measure in constructions at Susa; see Perrot

The use of brick dimensions as a module for the definition of proportions, suggested here for the statue of Darius, is more plainly seen in the figured decoration of Achaemenid glazed bricks that were used as both structural and decorative components of walls. The flat or relief decoration of Achaemenid glazed bricks recovered from Persepolis, Susa, and Babylon was applied to the exposed sides of the brick,

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and Ladiray, *Cahiers de la DAFI* 4 (1974): 44, 48. On Achaemenid metrology, see F. Krefter, *Persepolis Rekonstruktionen* (Berlin, 1971), pp. 29–31; A. Hesse, "Métrologie statistique d'éléments architectureaux des palais achéménides de Suse," *Cahiers de la DAFI* 2 (1972): 219–41; K. G. Siegler, "Bemerkungen zu Persepolis," *Kunst des Orients* 10 (1975): 26 f. These sources are now superseded by M. Roaf, "Persepolitan Metrology," *Iran* 16 (1978): 67–78; idem, "Sculpture and Sculptors at Persepolis," *Iran* 21 (1983): 97–102.

[21] The unit of measure frequently used in brick constructions of pre-Persian date in Egypt was the royal cubit of twenty-eight digits or 52.4 cm. But most Egyptian bricks were not made to any standard size and fell within a general range of dimensions that varied with time. Only the cubit-bricks of the Old Kingdom were apparently made to a fixed size (52–53 × 26 cm). Although bricks from other periods of Egyptian history vary in their dimensions, the common dimensions of bricks used in the domestic architecture of ancient Egypt is 30 × 15 cm = 4 × 2 palms; see A. J. Spencer, *Brick Architecture in Ancient Egypt* (Warminster, 1979), pp. 149 f. I wish to thank Cathleen Keller for this reference.

[22] E. Iversen, "The Canonic Tradition," in J. R. Harris, ed. *The Legacy of Egypt* (Oxford, 1971), p. 67; idem, *Canon and Proportions in Egyptian Art* (Warminster, 1975), pp. 17, 79, pls. 22–24. For a critical review of Iversen's study, see E. Lorenzen, "Review Article: Canon and 'Thumb' in Egyptian Art," *JAOS* 97 (1977): 531–39. For other studies of the Egyptian canon and the use in Egyptian art of grids different from those discussed by Iversen, see R. Hanke, "Beiträge zum Kanonproblem," *ZÄS* 84 (1959): 113–19; G. Robins, "The Length of the Forearm in Canon and Metrology," *Göttinger Miszellen* 59 (1982): 61–75; ibid. 68 (1983): 85-91; ibid. 72 (1984): 21–23, 27–31; M. Bietak and E. Reiser-Haslauer, *Das Grab des ᶜAnch-Hor*, Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie, vol. 7 (Vienna, 1982), pp. 295 f. I wish again to thank Cathleen Keller for the references to discussions of the Egyptian grid.

[23] The fist, which may also be used to plot the Darius statue in the Egyptian grid, corresponds to 1⅓ palms = four fingers and thumb and, has the value of 1⅓ sidelengths of the square in the Egyptian grid; see Iversen, *Canon and Proportions*, pp. 15; 30; 32, n. 4; 75 f.; 87, n. 2.

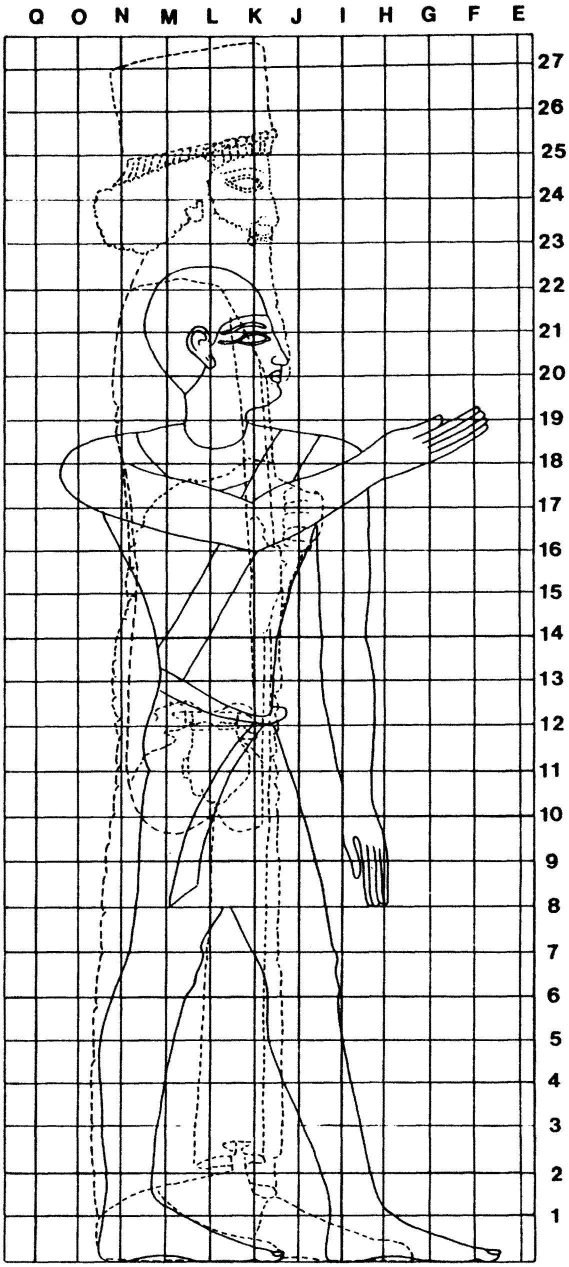

FIG. 5.—Drawing of the statue of Darius I, with head and shoulders restored, plotted in the Egyptian grid of the Saite period. Based on Iversen, *Canon and Proportions*, pl. 23. Drawn by Jane Becker, Lowie Museum of Anthropology.

which usually corresponded to the brick thickness, or height, in wall bricks, and to the brick face in floor or ceiling tiles.[24] Achaemenid glazed bricks were either square or rectangular half-bricks. Some were also slightly wedge-shaped, a format that served to produce a tight joint on the exposed side of the brick. Square wall bricks generally measure 33–35 × 33–35 × 8–9 cm, or four Persepolitan palms to a side and one Persepolitan palm in thickness.[25]

The best-preserved figured glazed bricks of Achaemenid date are panels decorated with the Archer frieze from Susa, now in the Louvre, depicting a procession of standardized figures of armed guards. First identified by Dieulafoy with members of the Ten Thousand Immortals, known from Herodotus's account of Achaemenid royal guards, the body of picked Persian troops (7.86 f.), the Archers are now more specifically identified with Susian guards and recognized by their twisted head-band, a feature exclusive to Elamites on labeled Achaemenid reliefs.[26] Like the Susian guards that head the procession of courtiers on the stone reliefs from the Apadana façade at Persepolis, each archer in the glazed brick version from Susa is dressed in an ankle-length flowing garment and carries a spear with the circular butt on the toe, an uncased bow over the left arm, and a quiver over the shoulder (figs. 6–8). Thus despite differences in colors and ornamentation, the Susian guards in all versions of the Archer frieze display identical gestures and postures.[27] They are shown facing right or left, framed by ornamental borders and sometimes by inscriptions, and executed in flat colors or in relief. In the reconstructed version in the Louvre, the standard figure is four-fifths natural size, or about 1.46 cm in height, and is represented by seventeen brick thicknesses (each measuring about 8.5 cm) that define the figure from the crown to the soles of the feet. But if, as in the Darius statue, the head is measured from hairline to chin (defined in the Archer frieze in the Louvre by 1⅔ brick thicknesses), then a ratio of 9:1 is also obtained here for head to body height (fig. 6).[28]

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[24] On Achaemenid glazed bricks from Susa, see Dieulafoy, *L'Acropole de Suse,* vol. 3, p. 280; J. de Morgan, in J. de Morgan et al., *Mémoires de la Délégation en Perse,* vol. 1, *Recherches archéologiques: Fouilles à Suse en 1897–1898 et 1898–1899* (Paris, 1900), pp. 98 f.; G. Jéquier, ibid., pp. 78 f.; de Mecquenem, *MAI* 30 (1947): 48, 56, 64, 79; idem, in A. U. Pope, ed., *A Survey of Persian Art from Prehistoric Times to the Present,* vol. 1 (New York, 1938), pp. 323 f.; J. Perrot et al., "Recherches archéologiques à Suse et en Susiane en 1969 et en 1970," *Syria* 48 (1971): 48; J. V. Canby, "A Note on Some Susa Bricks," *AMI* 12 (1979): 315–20. For Achaemenid glazed bricks from Babylon, see R. Koldewey, *The Excavations at Babylon* (London, 1914), p. 129, fig. 64; idem, *Die Königsburgen von Babylon,* WVDOG 54 (1931), pp. 120 f., pl. 39; F. Wetzel, "Der Perserbau im Westen der Südburg," ibid., pp. 122 f.; E. Haerinck, "Les Palais achéménides de Babylon," *Iranica Antiqua* 10 (1973):118–27. For Achaemenid glazed bricks from Persepolis, see Schmidt, *Persepolis,* vol. 1, pp. 71, 78, 91.

[25] Koldewey, *Die Königsburgen von Babylon,* vol. 1, pp. 120 f.; de Mecquenem, *MAI* 30 (1947): 47 f.; cf. Roaf's reference to the Persepolitan foot measure of four palms, for which there is no clear evidence; see "Persepolitan Metrology," *Iran* 16 (1978): 78.

[26] Dieulafoy, *L'Acropole de Suse,* vol. 3, pp. 280–94, 315, figs. 151–56, 158–60, 162, pls. 5–7; de Mecquenem, *MAI* 30 (1947): 47 f. This corps was known as the Immortals reportedly because its number was kept constant through recruitment from Elam, Media, and Persis; see A. T. Olmstead, *History of the Persian Empire* (Chicago, 1948), pp. 238 f. For an example of the Archer frieze from Babylon, see Koldewey, *Die Königsburgen von Babylon,* vol. 1, pp. 122 f., pl. 39; Porada, *Ancient Iran* (London, 1962), pp. 145 f.; Haerinck, *Iranica Antiqua* 10 (1973): 123; Root, *King and Kingship,* pp. 233 f. On the designation of the élite corps as "the immortals," see R. N. Frye, "Achaemenid Echoes in Sasanian Times," in Koch and Mackenzie, eds., *Kunst, Kultur and Geschichte,* pp. 247 f.

[27] On compositions with human figures other than the procession of guards preserved on Achaemenian glazed bricks, see Canby, *AMI* 12 (1979): 315–20.

[28] Measured from crown to base of beard, the head in the Archer frieze depicted on the panels in

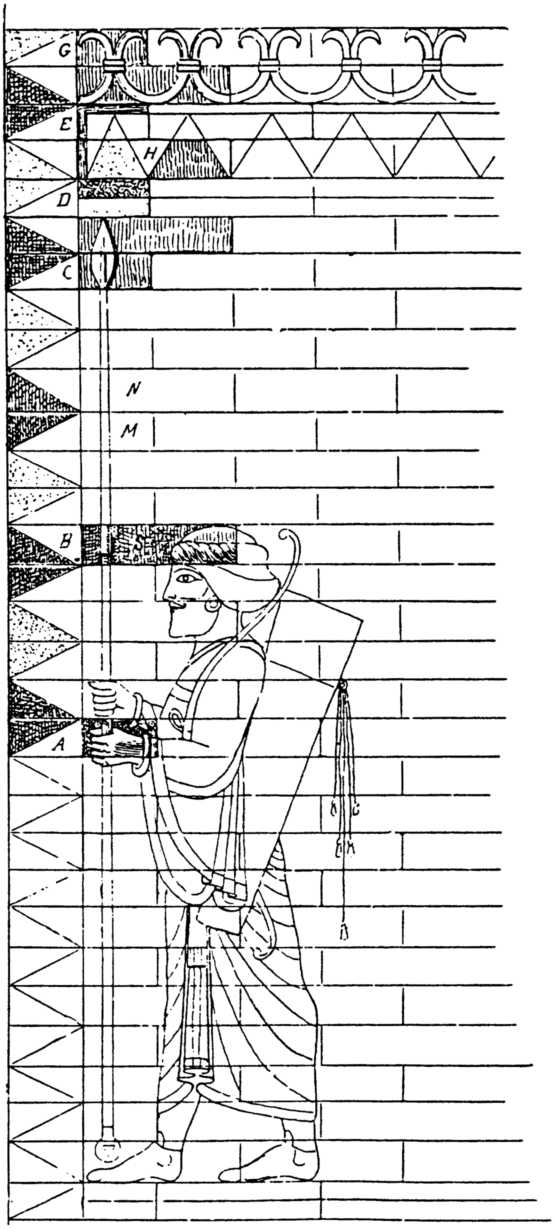

FIG. 6.—Molded and glazed-brick panel showing a Susian guard from the Archer frieze from Susa, in the Louvre. Reconstructed drawing from Dieulafoy, *L'Acropole de Suse,* vol. 3, fig. 154.

In these panels, the length of the face from the hairline to the root of the nose (figs. 7, 9) is equal to a fist of five fingers, which fits exactly the space provided by the height of the standard brick (fig. 8). Since the standard brick height in this panel has the metrological value of one Persepolitan palm of four fingers (about 8–9 cm), the correspondence between brick height and the fist of five fingers indicates the convenient reduction of the image by one finger (about 2.2 cm) from its metrological equivalent. Similarly, the forearm, which in Persepolitan metrology is presumed to have had the value of a cubit of twenty-four fingers (about 51–52 cm), is reduced in the same panel to fit the dimensions of the brick of sixteen Persepolitan fingers (about 33 cm). The reductions of the cubital forearm and the first of five fingers for accommodation of the four-palm and one-palm formats of the standard brick may be viewed as yet further instances of the subordination of anatomical proportions in art to architectural priorities and hence to metrological values. Moreover, the height of the entire composition (determined by the height of the spear-shaft without the variable tip of the blade) is twenty-four brick thicknesses, the height of the body (hairline to base of feet) is sixteen brick thicknesses, the breadth of the body (front of forward ankle to back of posterior leg) measures one brick length = four brick thicknesses.[29] The linear measures used in the representation of proportions in the composition of the Archer frieze are thus in a ratio of 6:4:1, which corresponds to that of the relative values of the Persepolitan cubit, four palms ("foot") and one palm. The same ratios evidently prevail in labeled plans of Achaemenid structures at Persepolis.[30] In Achaemenid architecture, as in the composition of the Archer frieze from Susa, the relationship of the parts to the whole is determined, therefore, by ratios that are based on the prevailing system of linear measure.

The reduction of the scale of figures in later versions of the Archer frieze was a phenomenon that may be explained by a parallel development in Achaemenid glazed brick panels from Susa that depict a procession of lions.[31] The Lion frieze is represented by an earlier version, datable to the reign of Darius I, and a later series from

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the Louvre is one-seventh of the body height, or about 22 cm, as observed by de Mecquenem, *MAI* 30 (1947): 47 f. However, because the height of the headdress and beard length are subject to considerable variation, the head is generally measured from crown to chin and the face from crown to mouth; see E. Panofsky, "The History of Human Proportions as a Reflection of the History of Styles," *Meaning in the Visual Arts* (New York, 1955), pp. 55–107 and passim.

[29] The representations of the fist and forearm on these bricks display the same rate of their reduction from their respective metrological equivalents. Like the fist of five fingers, which in this panel is assigned the metrological value of a palm of four fingers, the representation of the forearm is six fingers (about 13.2 cm) shorter than its metrological equivalent in the Persepolitan system of linear measure. Moreover, if the Persepolitan cubital forearm is measured from elbow to the tip of the medius, then its pictorial equivalent in the Archer frieze would have to be lengthened by one brick thickness. These additions to the length of the forearm in the Archer frieze would increase its dimensions, giving the same ratio of palm to forearm that is found in their metrological equivalents; see n. 20, above. Like the headdress above the hairline, the variable blade of the spear above the socket is not computed in these measurements.

[30] Roaf, "Persepolitan Metrology," *Iran* 16 (1978): 78.

[31] The smaller dimensions of late Achaemenid bricks do not explain the extent of reduction notable in the scale of figures in some of the later versions of the Archer frieze; see Koldewey, *The Excavations at Babylon,* fig. 64 (with incorrect caption). For the dimensions of late Achaemenid bricks, see Perrot et al., *Syria* 48 (1971): 39 f.; Hesse, *Cahiers de la DAFI* 2 (1972): 227 f.; R. Boucharlat and A. Labrousse, "Le Palais d'Artaxerxès II sur la rive droite du Chaour à Suse," *Cahiers de la DAFI* 10 (1979): 62.

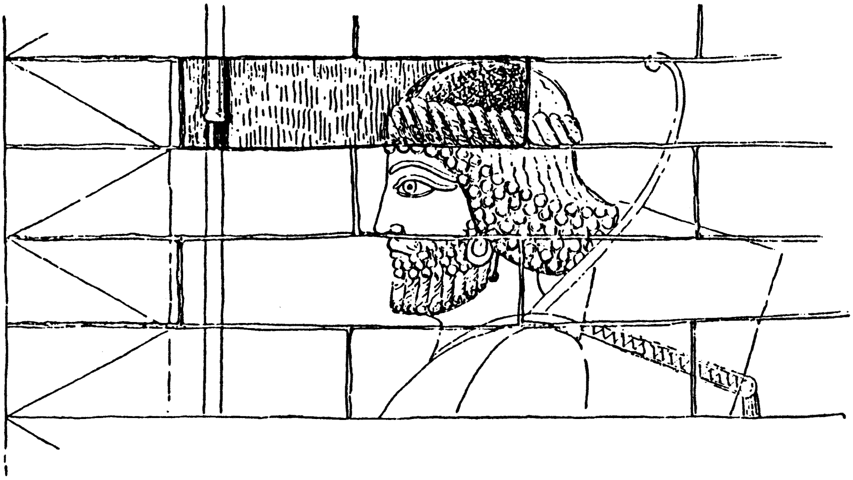

FIG. 7.—Detail of molded and glazed-brick panel from the Archer frieze from Susa, in the Louvre. Reconstructed drawing from Dieulafoy, *L'Acropole de Suse,* vol. 3, fig. 156.

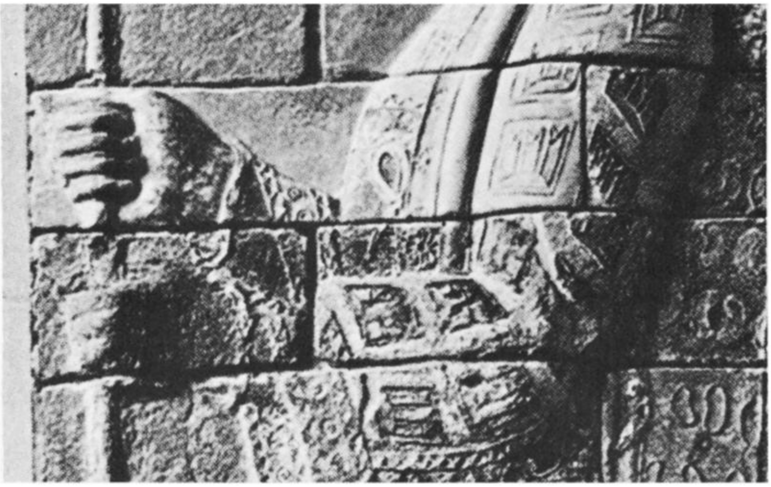

FIG. 8.—Detail of molded and glazed-brick panel showing a Susian guard from the Archer frieze from Susa, in the Louvre. After Porada, *Ancient Iran,* pl. 42.

the reign of Artaxerxes II (404–359 B.C.) (fig. 9–10).[32] Although the height and length of the lion in both versions are identical (about 1.25 × 2 m), in the older version the lion's height is defined by almost fourteen brick thicknesses, whereas only half that number define it in the later version where bricks of double thickness are used.[33] The use of bricks of double thickness in the later version, as suggested by R. de Mecquenem, was designed to facilitate construction of the relief by reducing the number of horizontal joints (fig. 10).[34] Brick joints which served as a "grid" for the definition of proportions in the earlier version of the Lion frieze from Susa (fig. 9) were thus gradually deprived of their importance as proportional indicators. Once anatomical proportions were fixed, standardized figures with the proportions of the earliest examples could be repeated in different dimensions or transferred to another medium without direct reference to the original brick module.

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[32] Dieulafoy, *L'Acropole de Suse,* vol. 3, pp. 274–80; idem, *Les Antiquités de Suse découvertes et rapportées par la Mission Dieulafoy* (Paris, 1913), pp. 11 f.; de Mecquenem, *MAI* 30 (1947): 54 f., figs. 30-31.

Similarly, the various versions of the Archer frieze from Susa and Babylon may be assigned to an earlier and a later type.[35] Whereas the earlier type is represented by panels that manifest a correspondence between anatomical proportions and brick dimensions (figs. 6–8), the later type may be identified with versions that lack such correspondence. The reduced scale and formulaic figures which appear without reference to the "grid" pattern of the brick joints are thus later versions based on nearly life-size originals characterized by a correspondence between face length and brick height. Although the Archer frieze panels from the vicinity of the Apadana appear to date from a period when repairs and additions were made to earlier Achaemenid structures at that site, they evidently reproduce the scale and format of the earliest panels datable to the reign of Darius I.[36]

## III

A search for the origins of the Achaemenid system of proportions in art must take into account information offered in Achaemenid texts about the nationalities of the work force engaged in the construction of the palace of Darius I at Susa. According to the foundation charter of Darius's palace (DSF), its foundations were laid by Babylonians, who also molded and baked the bricks used in its construction.[37] Babylonians evidently performed the same tasks in Darius's later constructions at Susa, as indicated in foundation tablets uncovered there in 1970 (DSz).[38] Darius's earlier foundation charter had contained an incomplete and ambiguous reference to the role of Ionians in the decoration of his palace, which is clarified by the information offered by the complete texts of the tablets uncovered more recently at Susa.[39] Here it is stated that "the elements of decoration with which the terrace was decorated" were imported from Ionia.[40] The "elements of decoration" of the palace could refer to any

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[33] The lion's length is measured from nose to tail, its height from crown to base of paws; see de Mecquenem, *MAI* 30 (1947): 54 f.

[34] Ibid., p. 56.

[35] See n. 24, above.

[36] Ibid. and Dieulafoy, *L'Acropole de Suse*, vol. 3, pp. 284 f. For a review of the finds at Susa, see Schmidt, *Persepolis*, vol. 1, p. 32. On the date of the late Achaemenid reconstructions at Susa, see Perrot et al., *Syria* 48 (1971): 43.

[37] R. G. Kent, *Old Persian Grammar, Texts, Lexicon* (New Haven, 1950), pp. 142–44, 113k; W. Hinz, "The Elamite Version of the Record of Darius's Palace at Susa," *JNES* 9 (1950): 1–7; Vallat, "Deux inscriptions élamites de Darius Ier," *Studia Iranica* 1 (1972): 9, ll. 22–26, 46.

[38] Perrot et al., *Syria* 48 (1971): 49.

[39] Vallat, *Studia Iranica* 1 (1972): 11: DSf, ll. 36–37. The incomplete passage in DSf was taken to mean that (1) Ionians worked on the decoration of the palace; (2) Ionian residents of Babylon baked the bricks; and (3) the decoration of the glazed bricks was imported from Ionia; see de Mecquenem, in *MAI* 30 (1947): 99; J. P. Guepin, "On the Position of Greek Artists under Achaemenid Rule," *Persica* 1 (1964): 34; Haerinck, *Iranica Antiqua* 10 (1973): 119, n. 51.

[40] Vallat, *Studia Iranica* 1 (1972): 10 f., DSz: ll. 38–40.

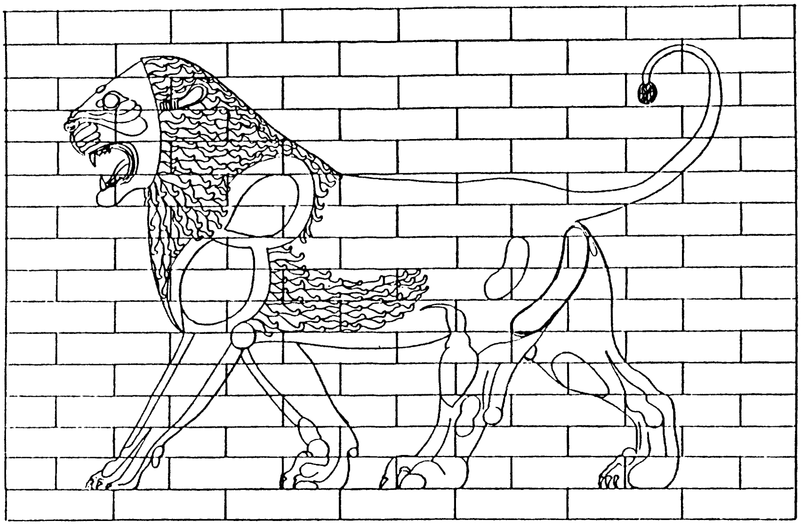

FIG. 9.—Detail of molded and glazed-brick panel showing a lion from the Lion frieze of the earlier type from Susa, in the Louvre. Drawing from R. de Mecquenem, *MAI* 30 (1947): fig. 31.

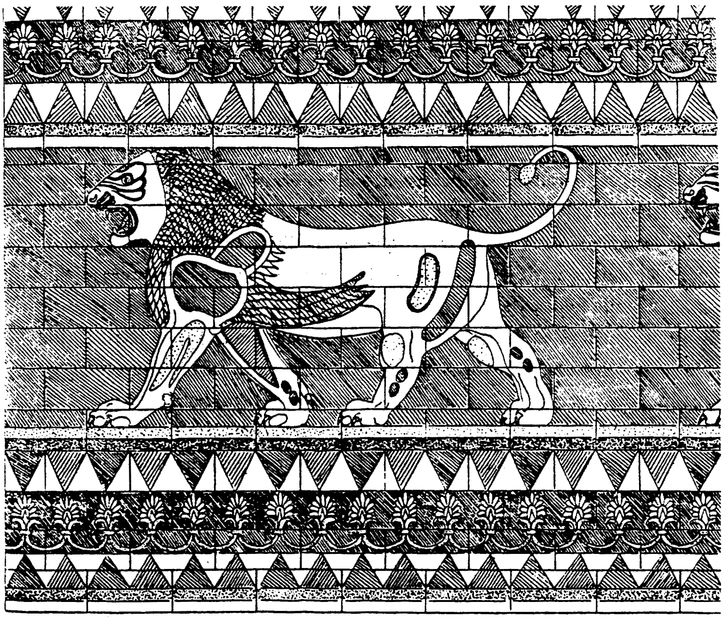

FIG. 10.—Detail of molded and glazed-brick panel showing a lion of the later type from the Achaemenid complex at Susa, in the Louvre. Drawing from R. de Mecquenem, in *MAI* 30 (1947): fig. 30.

number of fixtures, such as stone slabs for reliefs. Furthermore, because Babylonians are explicitly credited here with the manufacture of molded and baked bricks, it is reasonable to identify the foreign labor force that contributed to the production of Achaemenid glazed bricks with the Babylonians, rather than with Ionians, who were distinguished as stone-cutters there.[41] Moreover, there is little in the form and iconography of the figures on Achaemenid brick panels to suggest a predilection for Greek art on the part of their creators. The proportions of the figures, as observed by J. P. Guepin, are "un-Greek: the legs of men and animals are too short, like the upper arms of men; there is no narrowing in the waist, no wrist, the hands are too small."[42]

The leading role played by Babylonians in the manufacture of bricks for Achaemenid palaces at Susa may well explain the long-noted similarities between the artistic formulas used in Neo-Babylonian and Achaemenid glazed brick panels.[43] But the Babylonian labor force at Susa was doubtless reinforced by native workmen, who are ignored in the lists given in the foundation charters, presumably because of the propagandistic nature of these texts.[44] The native contribution to the Achaemenid brick industry is, in fact, seen in the technology of the bricks from Susa. Apart from some glazed terra-cotta bricks of Neo-Babylonian type, the bulk of the bricks utilized in Achaemenid glazed brick panels was a glazed siliceous faience, frequently described as "frit." This lighter, more porous, and durable brick, which is not found in Neo-Babylonian structures, has a composition that is identical to that of Elamite bricks utilized in both Middle and Late Elamite structures.[45] Despite considerable innovation in the range of colors of the glaze, and in the method of its application to the decoration, Achaemenid frit bricks evidently continued the methods and materials of manufacture found in the older Elamite glazed brick industry.

The bilineal descent of Achaemenid glazed bricks from the traditions of Elam and Mesopotamia is further attested in their common use of the brick module as a proportional guideline in art. As in the Achaemenid glazed-brick panels from Susa, the height of the human face is defined by one brick thickness on Middle Elamite molded bricks (fig. 11).[46] The face length, however, is defined differently in frontal and profile heads. Whereas the brick thickness corresponds to the area between the hairline and mouth in profile heads, it defines the entire face (hairline to chin) in frontal heads. The entire frontal head is conveniently reduced to one brick thickness in the images of the bull-man and goddess depicted on the molded brick façade of the Susian Inshushinak temple of the twelfth century B.C. (fig. 12).[47] Here the Elamite brick artist was following Babylonian precedent, represented by the molded brick

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[41] See n. 37, above.

[42] Guepin, "Greek Artists," p. 42. On the Ionian presence in the labor force at Persepolis, see Root, *King and Kingship*, pp. 7 f.

[43] Schmidt, *Persepolis*, vol. 1, p. 32; de Mecquenem, *MAI* 30 (1947): 65 f.

[44] Root, *King and Kingship*, p. 8.

[45] Glazed frit bricks in both Elamite and Achaemenid structures are coated with a vitrified lead-base glaze, or "enamel," which is distinguished from true enamel which has a tin base; see P. Amiet, "Disjecta membra aelamica," *Arts asiatiques* 32 (1976): 14.

[46] Ibid., p. 14, figs. 18, 22. Middle Elamite molded bricks used in the panels reconstructed by Amiet measure 10–11 cm in thickness. The same standard is found in other Middle Elamite molded bricks from the Inshushinak temple at Susa and in the Kassite molded brick panels from the Innin temple at Uruk; see nn. 47–48, below.

[47] P. Amiet, *Elam* (Auvers-sur-Oise, 1966), p. 396, fig. 299, now in the Louvre. The panel measures 1.37 m in height.

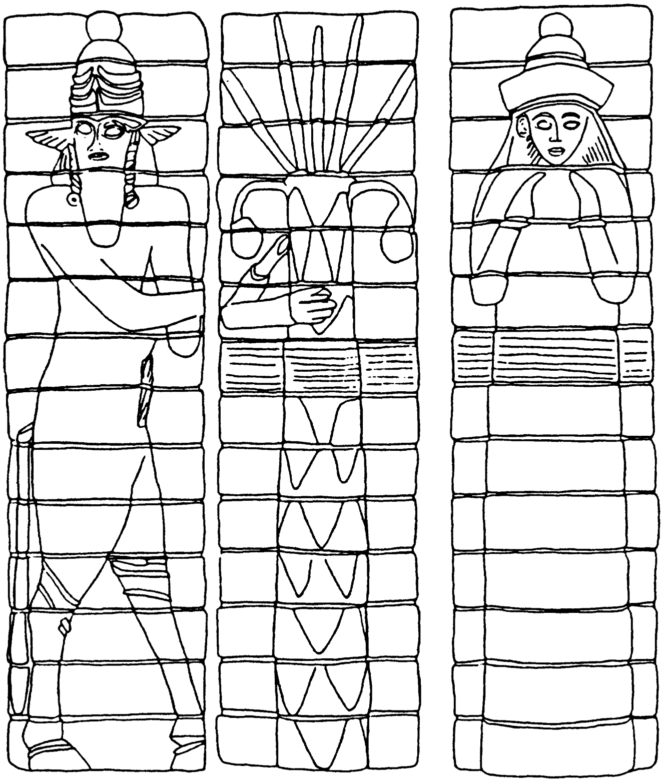

FIG. 11.—Middle Elamite molded and glazed-brick panel from Susa, in the Louvre. Reconstructed drawing from Amiet, *Arts asiatiques* 32 (1976): fig. 22.

panels from the Kassite temple of Innin, built at Uruk by Karaindash about 1415 B.C. (fig. 13).[48] If the reduced size of heads in the divine imagery on the Innin and Inshushinak temple façades had been dictated by the dimensions of the prevailing standard brick, the elongated bodies of the same gods echoed the vertical rhythm of the niched temple façade. However, a 9:1 ratio of head to body height is found in other Kassite and Middle Elamite imagery from different architectural contexts.[49]

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[48] Each figure measures about 1.65 m in height, and the height of the entire panel is 2.05 m; see E. Strommenger, *Art of Mesopotamia* (New York, 1964), pl. 170; W. Orthmann, *Babylonisch-assyrische Rundplastik* (Propyläen Kunstgeschichte, vol. 4) (Berlin, 1975), p. 295, fig. 169. The Middle Elamite molded brick panels from the Inshushinak temple also follow the unusual brick-bond, represented by courses of vertically aligned stretchers found on the façade of the Kassite temple of Innin at Uruk.

[49] The ratio of head to body height is 14:1 brick thicknesses in figures from the Kassite temple façade and 12:1 brick thicknesses in figures from the Middle Elamite Inshushinak temple. The 9:1 ratio of face to body height in other Middle Elamite imagery (see Amiet, *Arts asiatiques* 33 [1976]: figs. 3, 12, 22) is comparable to that of secular figures in Kassite art, as shown in Y. Tomabechi's revised drawing of the figure in the mural from Doorway IV in the palace at Dur Kurigalzu; see "Wall Paintings from Dur Kurigalzu," *JNES* 42 (1983): 129 f., figs. 2-3.

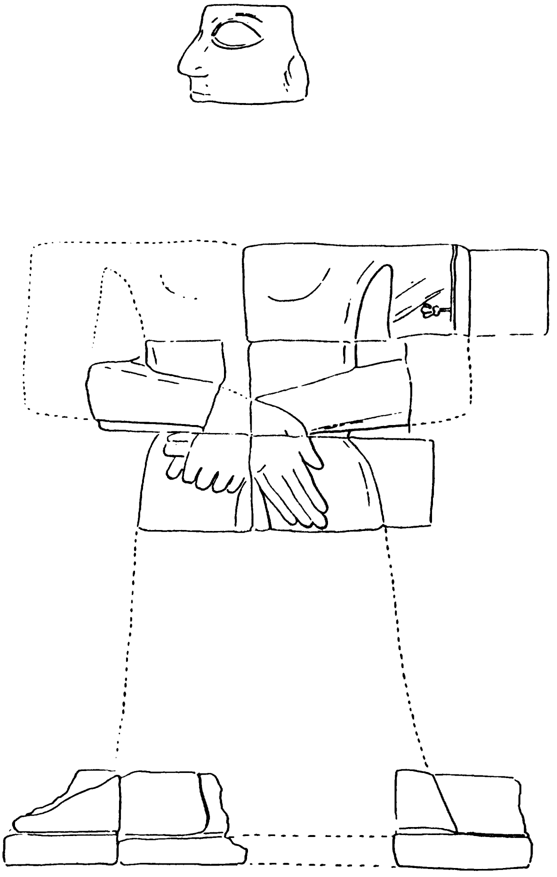

FIG. 12.—Middle Elamite molded brick panel from the façade of the temple of Inshushinak at Susa, now in the Louvre. Drawn by Jane Becker, after Orthmann, in *Propyläen Kunstgeschichte* 4 (1975): fig. 169.

The Mesopotamian forerunners of Achaemenid figured brick panels, of which the oldest known example is the façade of the Kassite temple of Innin, are more immediately documented in brick compositions of Neo-Babylonian and Neo-Assyrian date. Of special relevance for this study are passing remarks made by R. Koldewey in his pioneering study of Neo-Babylonian bricks. Commenting on the similarity between the pattern of joints of Neo-Babylonian glazed bricks and the Egyptian grid system, Koldewey admitted the possibility of a connection between brick joints and the regulation of proportions.[50] But there was insufficient evidence at the time to link the architectural module, represented by brick dimensions, with the Mesopotamian system of proportions in art. If the style and iconography of Neo-Babylonian representations

[50] Koldewey, *Excavations at Babylon,* pp. 26–29; idem., *Das Ischtar-Tor in Babylon,* pp. 23–24.

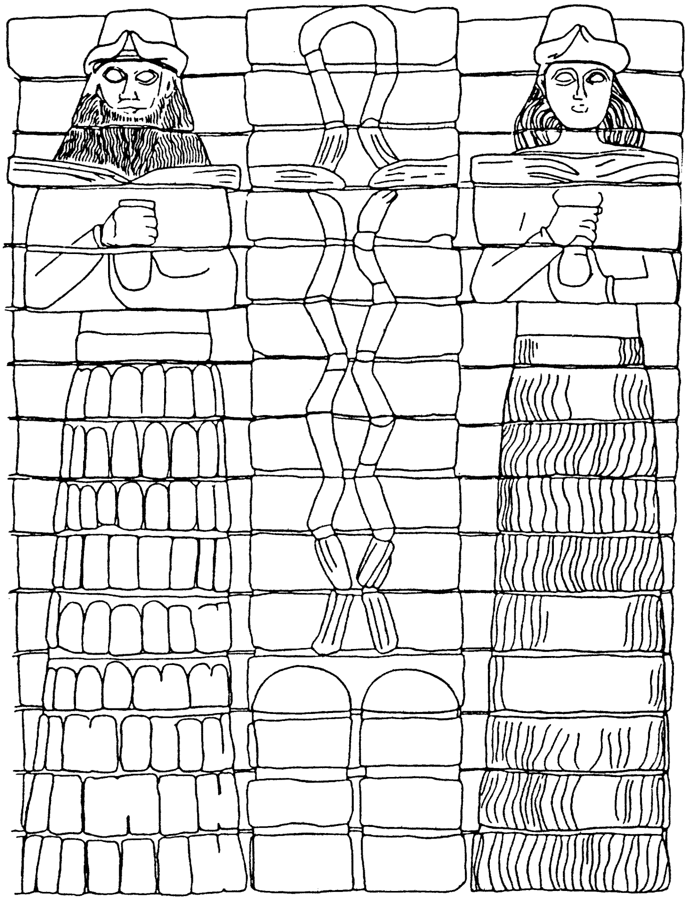

FIG. 13.—Kassite molded brick panel from the façade of the temple of Innin at Uruk, built by Karaindash around 1415 B.C., now in the Berlin Museum. Drawn by Jane Becker, after Seton-Williams, *Les Trésors de Babylone,* pl. 99.

of animals on glazed bricks from the throne room and the Processional Way in Babylon provided the models for animal processions on Achaemenid glazed brick panels, it was Neo-Assyrian art that inspired the proportions of the human figure in the Achaemenid Archer frieze.[51] The royal image depicted on the glazed-brick panel from Nimrud, dated to the reign of Shalmaneser III (858–824 B.C.), shows not only the ubiquitous 9:1 ratio of head to body height, but also ratios of face and palm to forearm and of breadth to body height that are similar, if not identical, to those of the Susian guards from the Archer frieze (figs. 6 and 14).

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[51] Idem, *Die Königsburgen von Babylon,* vol. 1, pp. 84 f., fig. 4, pl. 38; W. Orthmann, *Neuassyrische und spätbabylonische Flachbildkunst,* Propyläen Kunstgeschichte, vol. 14 (Berlin, 1975), pp. 316 f., pl. 19; M. V. Seton-Williams, *Le Trésor de Babylone* (Paris, 1981), p. 149.

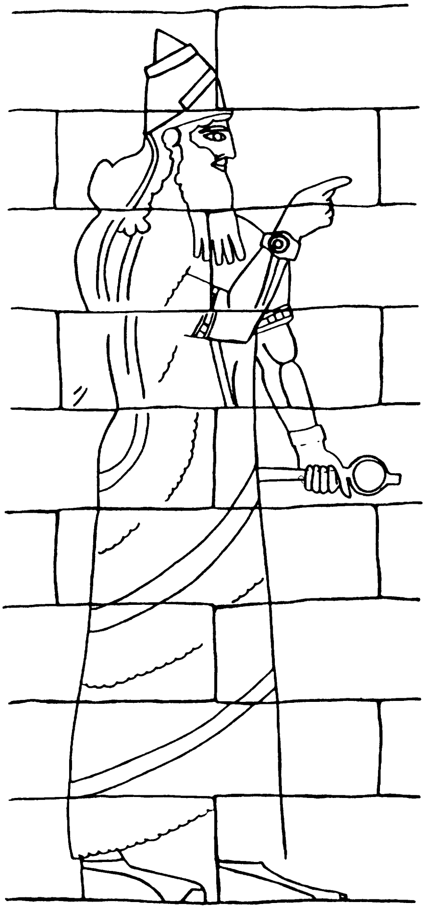

FIG. 14.—Detail of Neo-Assyrian glazed-brick panel from Nimrud, reign of Shalmaneser III (858–824 B.C.), in the Iraq Museum. Drawn by Jane Becker, after Seton-Williams, *Les Trésors de Babylone,* p. 106.

"To everyone who shall see this palace which was built by me, may it seem excellent," was Darius's message upon completion of his palace and its decoration at Susa.[52] To earn such universal approval, Darius adopted the age-old strategy of fusing symbols of traditional authority with expressions of topical interest in the decoration of his palace. Thus the files of Susian guards that meticulously record the reality of the situation through the use of contemporary dress, equipment, posture, and context, were expressed according to the conventions and canon of the prestigious art of the ancient Near East.

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[52] Kent, *Old Persian Grammar, Texts, Lexicon,* p. 144:DSj.

## IV

In summary, I wish to stress the following points. Recent studies on the connection between standard brick dimensions and Babylonian metrology have offered valuable information about the canon of proportions in the art of the ancient Near East. Because the monumental art of Achaemenid Susa is subordinated to brick architecture, that particular art is used here to test the validity of the architectural module for the definition of proportions in Achaemenid architectural sculpture. The examples used are Achaemenid glazed brick reliefs from Susa, represented principally by the Archer frieze (now in the Louvre) and by the colossal portal statue of Darius I in stone (in the Tehran Museum), which despite its Egyptian origin, resembles Persepolitan sculpture in its dress and proportions. The use in these works of art of a module with an absolute size corresponding to the prevailing brick dimensions thus suggests reliance on an architectural unit of measure. As in the architecture of Persepolis, the linear measure used to define proportions in the Archer frieze is expressed in the 6:4:1 ratio, which corresponds with those of the Persepolitan cubit of twenty-four fingers, four palms of sixteen fingers, and one palm of four fingers (see n. 25 above).

Finally, the Achaemenid use of the standard brick as a metrological guideline in art indicates a far earlier date than previously supposed for the use of a relatively large abstract module in the treatment of proportions in art. The Byzantine module, identified with the "face-length," for which E. Panofsky had in fact sought an "Eastern" origin, now finds an early forerunner in the "brick length" used in a similar fashion in Achaemenid art.[53] That the Achaemenid canon of proportions, like Old Persian metrology and brick dimensions, was itself heir to an even earlier Mesopotamian tradition is a likely assumption that finds both archaeological and textual support.[54]

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[53] Panofsky, *Meaning in the Visual Arts,* pp. 74 f. For the Byzantine face length and its subdivision into "nose lengths," see Godehard Schäfer, trans. *Malerhandbuch des Malermönchs Dionysios vom Berge Athos* (1855; Munich, 1960), pp. 34-35, sec. 52.

[54] See appendixes to this paper by W. G. Lambert, W. J. Heimpel, and A. D. Kilmer, below.

## APPENDIX A

### THE SUMERO-BABYLONIAN BRICK-GOD KULLA

Since Sumero-Babylonian civilization developed on an alluvial plain remote from sources of building stone and timber, clay bricks were necessarily the normal material used for more solid structures. It was held that all aspects of human life (including the material environment) had been ordained in the beginning by the gods, so building with bricks was so considered, and the god Kulla was thought to be involved. There is no evidence that those who professionally made and laid bricks worshiped him. Indeed, we have no knowledge of any shrines of his at which worship was made, but when in building operations the first brick of a house or temple was laid, at least in the second and first millennia B.C., according to a ritual series which is partly preserved[1] incense was burned and beer was libated to him. Prayers were also addressed to him at the appropriate moments asking for blessings on the building.

The earliest mention of Kulla occurs in the Sumerian myth "Enki and the World Order," where Enki appoints Kulla in the beginning to have responsibility for making bricks, but their laying and the accompanying rites here belong to another god, Mušda(mma).[2] The date of composition of this myth cannot be settled finally, but the surviving copies push it back to at least the beginning of the second millennium B.C. From about one century earlier, Cylinder A xviii–xix of Gudea, ruler of the city Lagash,[3] describes in minute detail how this ruler made and put in place the first brick of the rebuilt temple of the god Ningirsu, but while Enki is said to have decreed the destiny of this brick, neither Kulla nor Mušda is mentioned. Their absence from third-millennium cuneiform texts generally is noteworthy. Enki/Ea is involved because craftsmen gods generally were conceived either as aspects of his personality or as minor gods in his divine court. Thus a Sumerian incantation in a late copy makes Kulla son of Enki,[4] and a Babylonian incantation addressed to the very ceremonial "first brick" states: "Ea in the Apsû nipped off clay, he created Kulla to renew [you]."[5] In the partly surviving ritual series "Kulla" and in the practice of first-millennium kings of both Babylon and Assyria up to Nabonidus, Kulla had taken over many of the duties ascribed to Mušda in "Enki and the World Order," namely, the laying of bricks from the first to the last. However, when the house was completed, Kulla (presumably his image) was removed from the building, put in a boat, and allowed to drift away down the river.[6]

A cultic calendar compiled in Babylonia, probably during the third quarter of the second millennium B.C., states that the month Simānu (May-June), being the month when bricks are made and houses built, is the month "of Kulla of the land."[7] This goes back to the name of this month as "Placing-the-brick-in-the-brick-mould" used in Nippur in the mid-third millennium.[8] Sargon II of Assyria made the bricks for his new capital in the month Simānu, with appropriate offerings to Kulla and Mušda, but the laying of the bricks did not take place until the second following month, Abu.[9] In southern Mesopotamia, May-June would have been a likely time to make bricks and build with them, since it marked an interval in agricultural work, and clay in the clay pits would have been moist.[10]

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[1] The Title "Kulla: la[ying] the foundation of a house" is given as the first in the list of series KAR 44 obv. 2; see H. Zimmern, "Zu den 'Keilschrifttexten' aus Assur religiösen Inhalts," *ZA* 30 (1915): 204 ff.; and for edited sections of the series, idem, "Ein babylonisches Ritual für eine Hausweihe," *ZA* 23 (1909): 369 ff. See also R. Borger, *Symbolae Biblicae et Mesopotamicae* . . . (Böhl Festschrift) (Leiden, 1973), pp. 50–55.

[2] For translations of this section, see A. Falkenstein, "Sumerische religiöse Texte," *ZA* 56 (1964): 109, ll. 333 ff.; and S. N. Kramer, *The Sumerians* (Chicago, 1963), p. 181.

[3] See the translations of Falkenstein in Falkenstein and W. von Soden, *Sumerische und akkadische Hymnen und Gebete* (Zurich, 1953), pp. 155 f.

[4] T. J. Meek, "Some Explanatary Lists and Grammatical Texts," *RA* 17 (1920): 132, K 4147 10.

[5] F. Weissbach, *Babylonische Miscellen,* WVDOG 4 (Leipzig, 1903), pp. 32–35; and A. Heidel, *The Babylonian Genesis,* 2d ed. (Chicago, 1951), pp. 65–66.

[6] Zimmern, *ZA* 23 (1909): 374 f.

[7] See the edition with translation by E. Weidner, *Handbuch der babylonische Astronomie* (Leipzig, 1915), vol. 1, pp. 85 ff.

[8] See *RlA,* vol. 5, p. 300.

[9] D. D. Luckenbill, *Ancient Records of Assyria and Babylonia* (Chicago, 1927), vol. 2, p. 64 f.

[10] See further, R. S. Ellis, *Foundation Deposits in Ancient Mesopotamia* (New Haven, Conn., 1968), pp. 18–20; and also *RlA,* vol. 5, p. 300.

## APPENDIX B

### GUDEA'S FATED BRICK

Generally speaking, construction of houses is accompanied by ceremonies marking the beginning, end, and various other stages of work. Officials dig the first spadeful of earth on the construction site and lay the foundation stones. German carpenters affix a young tree to the roofbeam before the roof is put on and have drinks supplied by the builder. Arabs in Nablus practice the "slaughter of the house" and let the blood of a sacrificial animal flow in the ground on which the house is to be built.[1] When the door of a Persian house is put in, "the butcher must dip his hand in the blood of a sacrificed animal and lay it on the door."[2]

The ruler in Mesopotamia, when building for the gods, manufactured the first brick himself, sprinkled the foundations with precious materials, laid the foundation box, mixed some of the mortar, and led the celebrations of dedication. The best sources for these ceremonies are the building inscriptions of Assyrian and Neo-Babylonian kings and the cylinders of Gudea. The latter contain the most detailed information which is couched in poetic language and presents us with many difficulties of interpretation.

In connection with G. Azarpay's interest in the role of the brick in ancient Near Eastern art, I have attempted a new interpretation of Gudea's account of his manufacture of what he calls the "fated brick" of the temple House Fifty, which he rebuilt.

*Text*

In the prologue, in heaven Ningirsu speaks about his house and expresses his confidence that his "wide-eared" governor "will make the fated brick raise (its) head" to him (Cyl. A I 15). Gudea learns about it in a dream which he relates to Nanshe, the "seer of the gods." The following is one of the details:

> In front of me stood a pure basket.
> A pure brick mold had been fitted.
> A fated brick was there for me in the brick mold (V 5–7).

As might be anticipated, Nanshe's interpretation is:

> The pure basket standing in front of you,
> the pure brick mold which had been fitted,
> the fated brick which was there in the brick mold,
> that was in fact the right brick of House Fifty (VI 6–8).

The meaning of the dream as a whole is a communication of Ningirsu's desire for a new temple. Nanshe adds to her interpretation the advice of presenting Ningirsu with a gift of a chariot complete with the appropriate weapons, a standard, and a harp. Gudea does so and is rewarded with a second dream in which Ningirsu reveals himself to the prospective builder of his house, promising him abundance of water and prosperity in return for having built his house. Upon awakening, Gudea has the good news confirmed by an omen and prepares his citizens for the coming construction by removing all possible grounds for disagreement among them. Then follows the omen of the brick:

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[1] G. Dalman, *Arbeit und Sitte in Palästina* (Gütersloh, 1938), vol. 7, p. 90.

[2] H. Massé, *Persian Beliefs and Customs* (New Haven, Conn., 1954), p. 363.

Before the box of the brick mold a kid was laid.
The brick was called by the kid.
It (the kid) looked with favor upon its (the brick's) loam pit.
The shepherd, whom Nanshe has called by name, founded it (the loam pit) in princeship.
By his box of the brick mold which he had drawn,
by his loam pit which he had founded in princeship,
he let the Anzu (eagle)—it is the standard of his lord—
glisten "as" a pole (XIII 16–23).

If I understand this passage correctly, it contains the oracular communication of Ningirsu's satisfaction with the loam pit, and hence the material for the bricks, and with the box of the brick mold, and hence the form of the resulting bricks. The brick itself is not yet made. The omen of the brick is followed by levying workers, the procurement of building materials, some further actions, and an offering. The stage is set for the manufacture of the first brick:

The pure basket, the right fated brick mold
[he ].
He . . . , carried it with his head raised high.
(The god) King Land Shaker went before him.
(The god) Bison Door "places" for him the way.
(The god) Lady Of The Good Tree, his god,
holds hands with him.
At/in/on the box of the brick mold a-sa-ga is made.
It is that Adab, Sim, and Ala are playing for the governor.
Its loam pit of the bricks he sprinkled.
Honey, ghee, oil of abundance he hoed in.
The sap and resin of various trees
he made to foam.
He lifted the pure basket, went up to the brick mold.
Gudea placed earth in the brick mold.
What is proper he let appear splendidly.
The brick of House Fifty he places splendidly.
The lands sprinkle oil with him,
sprinkle cedar with him.
His city, place Lagash,
spends the day in . . . .
He shook the brick mold. The brick fell out to dry.
Upon the loam pit of its earth of agarin
it looked with favor.
Hashur sap and resin
he applied to the surface (of the brick).
About the brick which he had placed in the brick mold
Utu was happy.
For his agarin, rising like a mighty river,
king Enki . . . .
. . . he placed . . . . entered the house.
The brick was lifted from the box of the brick mold.
A pure crown rising to heaven,
the brick, he raised, set it among his people.
It is the pure team of Utu crossing over.
The brick raises the head toward the house.

It is a cow of Nanna gleaming in its byre.
He places the brick. He . . . in/on/at the house.
He sets down the outline of the house (XVIII 10–XIX 20).

*Comments on Some Key Terms*

(1) Fated brick.
sig$_4$-nam-tar-ra is not a genitive phrase because of a line from the "Drinking Song":[3] sig$_4$-nam-tar-ra a dé-zu "Your pouring water on the fated brick." nam-tar-ra is then the nominal form LAL-a and hence translated "fated brick." The brick is fated by the divine action reported in the omen of the brick.

(2) Brick mold and box of the brick mold.
A. Salonen wanted to see in ù-šub an early-middle Chalcolithic word of the form üthüb. One should actually derive it from the base šub which is used for the falling of the brick out of the brick mold (XIX 3). In the month names of Umma and Nippur, the word is spelled $^{giš}$ì-šub, suggesting a frozen verbal form used as noun. The pronounciation may have been ušub as suggested by ù-šub. ì-šub would then be the morphemic, ù-šub the phonetic spelling. $^{giš}$šub in Statue E III 1 and 9 is probably not an error for $^{giš}$ù-šub but a different form of the base, a *nomen agentis,* with the same meaning as ì/ù-šub: "caster."

The equation é-$^{giš}$ù-šub = *nalbanu* in Nabnitu, where the Sumerian is probably derived from GÁ-$^{giš}$ù-šub-ba in Proto Izi, indicates the distribution:

GÁ-$^{giš}$ù-šub-ba = *nalbanu*
$^{giš}$ù-šub = *nalbattu.*

The difference between *nalbanu* and *nalbattu* is, however, not clear. The use of the words in the Gudea inscriptions suggests that the former is that which determines the form of the brick, that is in particular the inner sidings of the brick mold, whereas the latter is the whole brick mold understood as actual implement. The "drawing" of the GÁ-$^{giš}$ù-šub-ba (Cyl. A XIII 20; Statue C II 20 f.) refers to the form of the resulting brick as the omen of the brick clearly implies. On the other hand, the ù-šub is "put down" (Statue B III 133); Gudea "steps up to" it (Cyl. XVIII 23) and "shakes it" to let the brick fall out (Cyl. A XIX 3). The meanings of the two terms are very close and overlap: the brick is lifted from the GÁ-ù-šub-ba (XIX 13), and the loam is placed into the ù-šub (XVIII 24).

(3) Loam pit.
The translation "brick stamp" for KA.AL was suggested ("wir glauben, es liegt nahe, anzunehmen . . .") by M. Witzel.[4] Gudea in fact stamped inscriptions on some of the bricks.[5] E. de Sarzec[6] shows the impression of the Anzu eagle en face on a brick, a fact which seems to corroborate the translation of KA.AL in light of the wording of Cyl. A XIII 21–22. Not all bricks were stamped, and we do not know whether stamping followed certain principles. The new interpretation of KA.AL given below means that first bricks were not stamped.

The word KA.AL occurs also in DP 604 as Deimel, *ŠL* 15,207, noted. The text contains the report of a field measurement. The sides and acreages are given. In some cases, a remark about the adjacent land is added. Next to one small side of each of the two subdivisions is a threshing floor (ki-su$_7$). Next to one of a number of small, probably irregularly shaped, plots on the small

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[3] M. Civil in *Studies Oppenheim* (Chicago, 1963), p. 70, l. 64.

[4] M. Witzel, *Keilinschriftliche Studien,* vol. 3 (Fulda, 1922), p. 43.

[5] See, for example, C. B. F. Walker, *Cuneiform Brick Inscriptions* (London, 1981), pp. 19 ff.

[6] E. de Sarzec, *Découvertes en Chaldée* (Paris 1894–1912), pl. 31 bis, no. 1.

**Reconstruction of the Usar-Tiraš-Du'a Field according to DP 604**

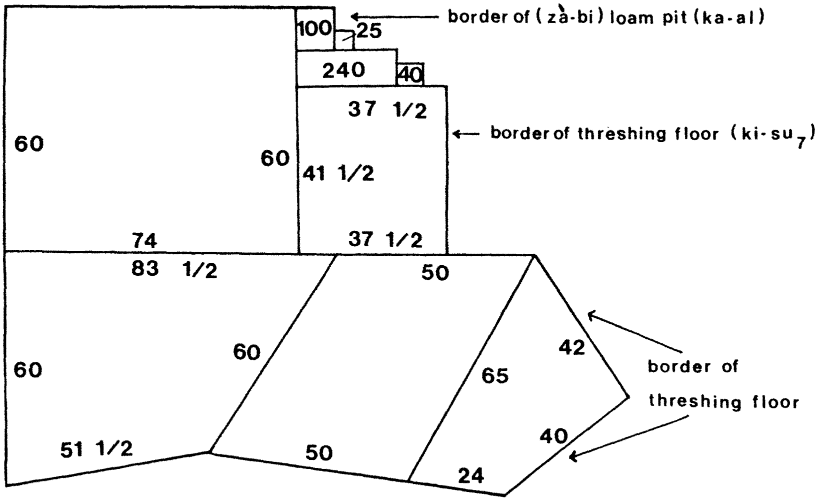

FIG. 1.—Numbers next to sides refer to length (1 = ca. 12 feet). Numbers in the centers of segments refer to surface (1 = ca. 375 sq. feet).

end of the upper subdivision is a KA.AL (see fig. 1). It must signify a land use which is not compatible with growing crops.

According to Statue C II 22, KA.AL is a genitive construction. ka-al(a) should be identical with Akkadian *kalakku* and mean literally "mouth/opening of the hoe," i.e., excavation. I suspect that the Akkadian word in Atram-hasis I 40 designates a loam pit where the working gods were engaged in the tedious work of excavating and treading loam, a scenario well suited to the start of a rebellion.

(4) Pole.

In *AHw. urinnu* is defined as "eine Standarte" and *urigallu* is translated as "Standarte," das "Hütte mit Standarte." Since *urigallu* means "big *urinnu*," the latter, *urinnu*, must be the more general term. According to lexical texts, the *urinnu* was made of wood or reed. The few references with contexts do not reveal its function. The *urigallu* was made of reed. It could be carried, planted in the ground, and depicted on walls. Often many, typically seven, *urigallu* were used together. They were so arranged that one could sit "within/among them," a fact which makes the translation "Hütte mit Standarte" unnecessary. Used in such manner, they are "probably to be understood as an enclosure technique, sealing off the ritual site from the everyday and mundane world, so as to make it suitable for cultic action."[7]

The sign urì depicts a pole with a loop attached to it at the top. The rather frequent pictorial representations were analyzed by E. Heinrich,[8] under the term Bügelschaft. He demonstrates that there existed two types. There was a wooden pole with a loop whose shafts were probably mounted with copper. Pairs of such poles flank entrances, and their loops are not parallel to wall and door as the representations suggest but stand away at 90-degree angles.[9] Originally they held a cross-bar from which a screen was hung. The shaft of the other type is identical with that of the so-called ring bundle (the Inanna sign) and the Ringträger (a shaft made of a reed bundle with usually three pairs of loops attached to it near the top).

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[7] R. Caplice, "Namburi Texts in the British Museum," *Or.*, n.s. 36 (1967): 30.

[8] E. Heinrich, *Bauwerke in der altsumerischen Bildkunst* (Wiesbaden, 1957), pp. 37 f.

[9] Ibid., fig. 50.

References from Sumerian literary texts confirm the identification of urì with the looped poles flanking entrances. Typically, the word is connected with the verb mul "to glisten." This may be seen in light of Heinrich's observation that the looped poles are coated with metal. urì is written once with the determinative giš (Gudea, Statue E III 4), never with gi. In Enmerkar 133 ("may the poles glisten for me by its doorjambs") and Lugalbanda-Hurrum 442 (TCL 16 pl. 160 13: "the glistening poles from the Abzu were planted for them. The door of the land Šuba . . . ." The poles are usually connected with entrances and are also found on "the place of the planted pole(s)," ki-urì-rú-a(k).[10] S. Cohen correctly stresses the apotropaic nature of the poles.[11] It derives of course from their original function as part of a frame for screens.

The passage Gudea, Cyl. A XIII 20–23 expresses a relationship between box of the brick mold, loam pit, and pole. In Statue C, E, and F, this same relationship is put in simpler terms: "The box of the brick mold was drawn. The pole glistened above the loam pit" (C II 20 ff. = E III 1 ff. = F II 12 ff.).

In Cyl. A XIII 23, urì stands in the terminative which is not clear to me. I would guess that it somehow refers to the fastening of the Anzu standard to the pole.

(5) Adab.

A. Falkenstein read this line ensí-ra-a $^{urudu}$si-im á-lá mu-na-tuk-àm.[12] The plene spelling is inexplicable; the determinative urudu for si-im unique (cf. Cyl. A XXVIII 18; B XV 20). I propose instead the reading: ensí-ra a-dab$_4$ si-im. . . . The same grouping is found in Temple Hymns 107: šubun-zu a-da-ab unu-gal-zu $^{kuš}$šèm $^{kuš}$á-lá. a-da-ab is a well-known subscript to texts which Falkenstein determined as being hymns to deities which often mention the name of a king.[13]

The context of Gudea Cyl. A XVIII provides the first example for an occasion on which an a-da-ab was performed. Šulgi G, an a-da-ab of Enlil, contains a reference to a fated brick (CT 36, 26:12).[14] The text may turn out to be an example for an a-da-ab performed at the ceremony of the fated brick.

(6) Agarin.

I still do not quite understand this term.[15] Falkenstein tried to explain it by reference to the German "Mutterboden," in view of the related passage in "Enki and the World Order" (see below). If, in fact, *agarinnu* designates beer mash (so *CAD* s.v.), this would be the second example of *agarinnu* as a watery mixture serving in a preliminary stage in a manufacturing process. Civil[16] and M. Lambert[17] suggest the reading $^{im}$du$_5$-rí-na, which they connect with *tinūru* "oven." Civil points out, however, that Gudea would hardly have used a kitchen implement for baking bricks. The translation "oven" is, moreover, hardly applicable in l. 10.

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[10] See Enlil Hymn 45, text RR in D. Reisman, *Two Neo-Sumerian Royal Hymns* (Ann Arbor [University Microfilms], 1970); also *PBS* 1/1, 8 I 14.

[11] S. Cohen, *Enmerkar and the Lord of Aratta* (Ann Arbor [University Microfilms], 1973), pp. 196 ff.

[12] A. Falkenstein, *Grammatik der Sprache Gudeas von Lagaš*, AnOr 28 (Rome, 1978), p. 106. Å. Sjöberg reads unú-gal-zu kù šèm . . . . The sign which he reads kù is preserved only in text H and may well be kuš.

[13] Idem, "Sumerische religiöse Texte. 1. Drei 'Hymnen' auf Urninurta von Isin," *ZA* 49 (1949): 101. A late lexical text suggests that a-da-ab was also an instrument (see *CAD* s.v. *adapu* A 1). C. Wilke mentions a passage from Šulgi E which may confirm this (AS 20, 256 f.).

[14] See also S. N. Kramer, "*CT* XXXVI: Corrigenda and Addenda," *Iraq* 36 (1974): 93 ff.

[15] See my article "The Nanshe Hymn," *JCS* 33 (1981): 82, l. 10.

[16] Civil, "Notes on Sumerian Lexicography, II," *JCS* 25 (1973): 173.

[17] M. Lambert in "Notes brèves," *RA* 63 (1969): 96 (no. 10).

Sequence of Events

I. Preparation

(a) Omen of the brick: (the choice of) the box of the brick mold and (the location of) the loam pit is confirmed by (inspection of the entrails of a sacrificial) kid (XIII 16–19).
(b) A pole with the image of the Anzu (is erected to guard over) the box of the brick mold and the loam pit (XIII 20–23).

II. Manufacture of the fated brick

(a) Gudea carries basket and brick mold to the loam pit. He is accompanied by Lugalkurdub, Igalima, and Ningišzida (XVIII 10–16).
(b) ? XVIII 17.
(c) An a-da-ab hymn to Ningirsu is performed on behalf of Gudea (XVIII 18).
(d) The loam is mixed with honey, ghee, oil, and resins (XVIII 19–22).
(e) Gudea (puts the mixture into) a basket, brings it to the brick mold, and places the mixture into it (XVIII 23–24).
(f) (Representatives of) foreign lands sprinkle oil and cedar; the Lagashites . . . (XVIII 25–XIX 2).
(g) (Gudea) takes out the brick from the brick mold and puts it up to dry (XIX 3–5).
(h) (Gudea) applies resin to the surface of the brick (XIX 6–7).
(i) Utu (dries it) (XIX 8–9).
(j) Enki . . . the agarin with water (XIX 10–11).
(k) ? XIX 12.
(l) (Gudea) displays the brick among the people (XIX 13–18).
(m) (Gudea) emplaces the brick (XIX 19).

Problem in the Sequence of Events

The text describes the manufacture of the brick in natural chronological order. Only the mention of lifting the brick from the box of the brick mold in XIX 13 presents a problem. In XIX 3 the brick's removal from the mold is mentioned. It is hardly imaginable that it was put back into it, something which could only have been reported in the now damaged section of l. 12. It is also unlikely that GÁ-ù-šub-ba is not what we think it is and designates instead something on which the brick was put out to dry. I have no explanation for this.

A Comment on the Meaning of II (i) and (j)

The participation of Utu and Enki in the manufacture of the brick is probably connected with Utu's power to dry and Enki's power to wet. Enki wets the loam, and Utu dries the brick. The image contained in the expression "his mighty-river-like rising agarin" (XIX 10) refers probably to the rising of ground water in the loam pit at the time of the flood. Note that the month when one "places the brick in the brick mold" falls into that season (second month in Ur III Umma; third in Nippur). In "Enki and the World Order" 335, Enki's action on the agarin is expressed in sexual terms. Falkenstein translates:[18] "In den Mutterleib (agarin) steckte er den Penis (so glatt), wie (wenn er) mit guter fürstlicher Butter (eingerieben gewesen wäre)." He understands this as drastic image for the penetration of the hoe into the ground. As in the Gudea passage, it may in fact refer to the penetration of water into the loam, providing it with the plasticity necessary for making bricks. If we see in Kulla a representation of the moisture in the loam, we can understand why he is asked to leave and never to return in the ritual for dedicating a house.[19]

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[18] Falkenstein, "Sumerische religiöse Texte. 5. 'Enki und die Weltordnung'," *ZA* 56 (1964): 83.

### Where is the Fated Brick Put Down and What Happens to It?

According to XIX 15, the brick was displayed among the people. Subsequently, Gudea "put it down."[20] The second sentence in the line in which that is stated (XIX 19) is not entirely understandable but seems to belong to the following.[21] What is clear is that the laying of bricks does not follow immediately. The mass production of bricks is mentioned in XX 17 f.: "The mother of Lagash, pure Gatumdu, gave birth to its (the temple's) bricks in a tide." In XX 26 the laying of foundations is reported. The fated brick is not mentioned here or elsewhere. Only the ritual of removing the walls of a temple from Seleucid Uruk gives a clue: the builder "carries an axe of lead and removes (*idekke*) the *libittu mahrītu*" (*RAcc* 9,15). The latter is identical with the fated brick of Sumerian tradition.[22] The "axe of lead" indicates that the first brick had to be loosened and thus was part of the masonry wall. Ellis's question of how the first brick was recognized might be answered by assuming that the brick was actually the first to be laid and that there existed a convention about the exact spot where a first brick was laid down.

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## APPENDIX C

### THE BRICK OF BIRTH

Clay as basic primal matter and the forming of malleable clay into bricks and other forms had fundamental and significant places in the ancient Mesopotamian conceptualization of birth-giving and of the matrix from which life, especially human life, derives.

In the mythology as expressed in the Akkadian Atrahasis Epic, the Mother Goddess placed a brick (*libittu*) between the seven left-side and seven right-side pieces of clay mixed with divine flesh that were then moulded by the "divine wombs" (*šasurrātu*) into seven pairs of males and females.[1] The "brick" was also prescribed to be present at the subsequent first incidence of the birth of a human baby born of one of the first females of modeled full-sized humans, and was to stay in place for nine (var. seven) days to "honor" the birth-goddess.[2] This brick has generally been understood simply as a birth-stool, i.e., that a squatting-place for the parturient woman was intended, even though a single brick would hardly suffice.[3] The fact that this same brick in Atrahasis was to be present at the first creation of divine matter and was to remain in place for seven or nine days indicates, however, that the brick had a symbolic significance that went beyond its possible function as an aid to delivery.

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[19] See Appendix A by W. G. Lambert, pp. 203-4, above.

[20] The same phrase occurs in l. 3 of the Nippur Lament (SLTN 102,3 = SLFN 14, 3N-T 919, 484, 3).

[21] é-a mu-DU.DU. Falkenstein translates "(Da) fertigte (Gudea) Ziegel an, brachte sie zum Haus." But gar does not mean "to manufacture," and the passage clearly deals with only one, the fated, brick. Cf. the similar construction gù-dé-a giš-a mu-DU.DU in Cyl. A VII 15. The latter designates an action which comes after lumber was taken out of the store and before it was used for the manufacture of a chariot. It may mean: "Gudea stood (and) stood (here and there) among (the pieces of) lumber (which were displayed there)." Similarly, the phrase é-a mu-gub-gub: "he stood (and) stood (here and there) on (the spot where) the house (was to be built)." In this case, the phrase designates an action which is preliminary to the setting of the outline of the house (on the ground), which is reported in the following line. A. D. Kilmer suggests "pacing off" or "walking through" for mu-DU.DU, the common preliminary activity of builders and carpenters to the actual line-laying or cutting.

[22] R. Ellis, *Foundation Deposits in Ancient Mesopotamia* (New Haven, Conn., 1968), pp. 26 ff.

Aside from the fact that the Pure Brick of Birth (sig$_4$-tu-tu-kù) was assigned by the creator-god Enki to the birth-goddess Nintu as the sign of her office (nam-en-na-ni) in the Sumerian myth "Enki and the World Order,"[4] I believe that we have overlooked a deeper meaning and significance of the unbaked clay brick, in that it appears to have been likened to placental material. That is, the fetus may have been thought of as the product that developed in and from the malleable, clay-like placenta.

In the Akkadian omen series concerning anomalous births,[5] the aborted placental material that is observed proceeds from unformed masses to developed human fetuses in Tablet I. The unformed material is compared to a great variety of things, depending upon the shape of development and abnormality of the fetus. We may note in particular the "clay" in l. 45 or the "brick" of ll. 33 f.—obviously not hard-baked and rectangular, but rather an unbaked, freely formed ("plano-convex" or "shovel-shaped") brick.[6] In reality, the human afterbirth is a sizeable, dense, and impressive piece of organic material,[7] which resembles, in fact, "bloody clay"; compare the common traditions that have *red* clay used for creation.[8]

Further ancient Mesopotamian associations between brick and fetus may be seen in the fact that $^{d}$Kūbu (deified fetus or premature infant) was the recipient of offerings during the course of production of glazed bricks.[9] Note also the descriptions of the city-temple Keš, the cult-shrine of the Mother Goddess, in the Abū Ṣalābīkh Zami Hymns 75:[10] kèš sig$_4$ tu-tu "Keš, brick(-work) (of?) birthgiving," and in the Sumerian Temple Hymns 94:[11] é kèš$^{ki}$ sig$_4$-zu tu-tu-zu (var. du$_8$-du$_8$-zu), for which see R. Biggs and T. Jacobsen.[12] The existence of wordplay between *libbu* "innards" (also "womb") and *libittu* "brick," and between sig$_7$-en-sig$_7$-DU$_{10}$ "placenta/motherwomb" (unless we are to read sa$_7$-en-sa$_7$-DU$_{10}$), and sig$_4$ "brick" is highly likely. An extension of the connection between brick/fetal material and clay-pit/womb may be seen in a Sumerian passage from Gudea: "It (the brick, sig$_4$) looks at the clay-pit (ka-al(a)) of its earth-of-the-womb (im-agarin-na)" (Cyl. A 19:4 f.).[13]

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[1] See W. Lambert and A. Millard, eds., *Atra-hasīs: The Babylonian Story of the Flood* (Oxford, 1969), p. 61 (Old Babylonian Version, Tablet I, line 259).

[2] Ibid., 63 f. (lines 288–94).

[3] T. Jacobsen, "Notes on Nintur," *Or.*, n.s. 42 (1973): 291, n. 67, suggests that the brick might have served as a cutting-board on which the midwife cut the birth cord, in addition to being the symbol of Nintur.

[4] C. Benito, ed., *"Enki and Ninmah" and "Enki and the World Order"* (Ann Arbor [University Microfilms], 1969), p. 108, lines 395 f.

[5] E. Leichty, ed., *The Omen Series* šumma izbu TCS, vol. 4 (Locust Valley, New York, 1970).

[6] Also *šumma izbu* IV 39; "If a woman gives birth to clay (IM) or a brick (SIG$_4$)"; cf. YOS 10, 56:8: "If the anomaly (*izbu*) is like a brick."

[7] Average = 1¼ lb., 7″ in diameter, 1″ thick (information from Dr. Aaron Storch, private communication).

[8] For classical sources, cf., for example, Pausanius, *Description of Greece* 10.4:4, where the remains of the ancient clay from which Prometheus fashioned mankind were said to "smell like the skin of a man."

[9] See W. Römer "Einige Bemerkungen zum dämonische Gotte 'KUBU(M)'," in *Symbolae Biblicae et Mesopotamicae . . .* (Böhl Festschrift) (Leiden, 1973), pp. 315, 319.

[10] R. D. Biggs, *Inscriptions from Tell Abū Ṣalābīkh,* OIP 99 (Chicago and London, 1974), p. 48.

[11] Å. Sjöberg and E. Bergmann, eds., *The Collection of the Sumerian Temple Hymns,* TCS, vol. 3 (Locust Valley, New York, 1969), p. 22.

[12] Biggs, "An Archaic Sumerian Version of the Kesh Temple Hymn from Tell Abū Ṣalābīkh," *ZA* 61 (1971): 195 f.; and Jacobsen, *Or.*, n.s. 42 (1973): 288.

[13] Reference and translation, W. Heimpel, private communication.

Moreover, parturition customs in modern times in the Near East still include unbaked clay bricks. According to H. Massé, "Au moment de l'accouchement, la femme se met à cropetons [! = croupetons], tournée vers La Mecque, chaque pied posé sur les trois briques superposées. On met sous elle un grand plateau de cuivre contenant un peu de poussière (pour que l'enfant se trouve tout d'abord en contact avec la terre."[14] To take another example from Iranian sources, the afterbirth is called *joft* "the mate," i.e., the "double" of the baby, as though it were the unformed member of a pair of twins of the live birth.[15] Also, the afterbirth together with the *khist,* the unbaked clay brick, or the "dirt" (clay?) that covered the pan upon which the delivery is made, is kept in the house of the parturient woman for a prescribed number of days and then buried.[16]

Note also the Iranian expression "Az khist to khist," "from brick to brick" (i.e., from the brick onto which one is born to the brick upon which one's head is laid at burial) = "from birth to death," "from womb to tomb."

To give another example of one productive avenue for comparative study, we note further that in Ancient Egyptian mythology, the divine potter Khnum, who fashions babies, "makes firm the birth brick," referring to fetal implantation in the uterus.[17] In Papyrus Westcar 10, 12, at the moment of delivery, the baby (or only its cut cord?) is placed on the *ỉfdy m ḏbt* "pillow of brick," and in Stela Turin 50058 a stricken man sits "on a brick" like a parturient woman.[18] The Egyptian evidence indicates a distinction between the functions of the actual birth-stool (*msḫnt*) and the brick.[19] In more recent African myths, moreover, human fetal development is also seen to be the divine handiwork of a god-creator who models the clay of life in the mother's uterus to form the baby. The uterus is, by extension, the "oven" in which the clay(-model) is baked (a common folkloric motif; cf. Eng. "she has a bun in the oven"). Note also that when the Sumero-Babylonian creator-god Enki/Ea created the female divine being Ṣaltu ("Battle") from the dirt of his fingernails, he baked (*epû*) the figure to complete its formation (OB Agušaya Hymn to Ištar A v 26).

While further investigation into delivery practices, ancient and modern, is necessary to prove the point, I believe that the potential evidence is strong enough to suggest that the *idea* of the brick was a highly significant symbol of the construction of life and of civilized existence as well. We conclude that the single, unbaked brick's primary function during actual delivery, as reflected in the mythological Atrahasis passage, was to serve as the pad (a) on which the baby was delivered, (b) on which the cut birth cord was placed and afterbirth delivered, and (c) with which the cord and afterbirth were eventually buried. Thus the midwife, as reflected in the mythological passage as the goddess Nintur in "Enki and the World Order," must have brought along the brick as part of her professional equipment. Moreover, it needs stressing that the importance of "primitive" observation of fetuses and fetal material in mythopoeic thought has been underestimated.[20]

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[14] H. Massé, *Croyances et coutumes persanes* (Paris, 1938), p. 36.

[15] For this common folkloric theme and its role in sympathetic magic, see, for example, J. G. Frazer, *The Golden Bough* (London, 1913), vol. 1, pp. 182–201.

[16] Dr. D. Lashgari, private communication.

[17] R. Ritner, "A Uterine Amulet in the Oriental Institute Collection," *JNES* 43 (1984): 215.

[18] M. Tosi and A. Roccati, *Stele e altre epigrafi di Deir el Medina* (Turin, 1972), pp. 94–96.

[19] References from Cathleen Keller, private communication.

[20] See my remarks in E. W. Conrad and E. G. Newing, eds., "The Mesopotamian Counterparts of the Biblical Něphīlîm," in *Perspectives on Language and Text: Essays and Poems in Honor of Francis I. Andersen's Sixtieth Birthday,* July 28, 1985 (forthcoming).